

acquired by presentation and 3 by purchase, 28 were received on deposit, 1 in exchange, and 9 were born in the Gardens. The total number of departures during the same period, by death and removals, was 163.

Amongst the additions special attention may be directed to:—

A pair of young Hippopotamuses (*Hippopotamus amphibius*) from German East Africa, purchased on March 2nd.

An Eland (*Taurotragus oryx*), born in the Menagerie on March 1st.

A Banksian Cockatoo (*Calyptrorhynchus banksi*) from New South Wales, deposited on March 15th.

Dr. A. Smith Woodward, F.R.S., F.Z.S., exhibited an antler of a Red Deer which had become malformed and enlarged by disease. The specimen was obtained by Mr. Thomas Sheppard from a prehistoric peat-deposit at Mablethorpe, Lincolnshire.

Mr. R. I. Pocock exhibited, on behalf of the Secretary, a model of the African Elephant "Jumbo," formerly living in the Society's Menagerie, made by the late Mr. William Pehr and presented to the Society by his widow.

Mr. C. J. With of Copenhagen communicated a paper entitled "An Account of the South-American *Cheliferinae* in the Collections of the British and Copenhagen Museums."

This paper will be published entire in the 'Transactions.'

The following papers were read:—

1. The Ears as a Race-Character in the African Elephant.

By R. LYDEKKER.

[Received April 5, 1907.]

(Text-figures 105-121.)

That an animal with the immense geographical range of the African Elephant—a range extending from Nubia and Abyssinia in the north to the Cape of Good Hope in the south, and from the east to the west coast across the heart of the continent—should exhibit local differences is a practical certainty, even though it be admitted that the animal is naturally a wanderer. Such wanderings must, however, of necessity be limited in degree, and are not of the "Cape to Cairo" character which would be essential to cause uniformity in physical characteristics among all the local forms of the species. The existence of local variation in the species has, indeed, been well known for many years alike to sportsmen, naturalists, and ivory-dealers; and in 1890 Dr. Paul

Matschie* proposed distinctive names for four of these local races.

In the discrimination of these races Dr. Matschie relied chiefly upon the characters afforded by the ears, supplemented by others derived from the skull; and it is quite obvious that in the case of an animal of the stature of *Elephas africanus* some such limitation of the bases of comparison is a practical necessity, seeing that entire mounted specimens are few and far between in our museums, while even mounted heads are comparatively uncommon. Unfortunately no figures of either the ears or the skulls have been published, so that it is in some instances a matter of considerable difficulty to satisfactorily identify Dr. Matschie's local races.

Under these circumstances, I have thought it advisable to make an attempt at putting matters on a more satisfactory footing by comparing the ears of such examples of the African Elephant as are available, either in the form of actual specimens or in the shape of photographs, and to figure some of the more striking types. I have taken the ear as the standard of comparison primarily for the reason that it was specially selected by Dr. Matschie; and, secondly, because, with the exception of the tusks, it is the one external portion of the animal which seems best suited for this purpose, and is likewise one of which examples are not unfrequently brought home by sportsmen.

The distinctive features afforded by the ear are exemplified not only by variation in the matter of contour, but likewise by differences in relative (and also in absolute) size. Why such differences should exist (or why, for that matter, the ear of the African Elephant should in all cases be so much larger than that of its Asiatic cousin) it is hard indeed to divine; but that they do exist, and in a very marked degree, will be apparent from the figures in this paper, all but one of which are reproduced from photographs. Then comes the question whether they are locally constant. To this question I cannot give an absolutely decisive answer. The specimens which I have had the opportunity of comparing agree, however, respectively with Dr. Matschie's descriptions of the typical examples from the same localities; while the numerous examples of the Sudan or Abyssinian Elephant which have come under my notice, and likewise several of the Cape Elephants, all conform in the matter of the size and shape of their ears to their respective local types. So far, therefore, as the available evidence goes, the various local representatives of the African Elephant do seem to be fairly constant in this particular; so that the *onus* of proving the opposite of this rests, I venture to think, with those who may take exception to the views here advanced.

In the matter of the relative size of the ear, it is important to

* Sitz.-Ber. Ges. Naturfor. Berlin, 1900, pp. 189-190; a summary of the external characters of these races is given by the Hon. Walter Rothschild in an appendix to Major Powell-Cotton's 'A Sporting Trip through Abyssinia,' London (Rowland Ward, Ltd.) 1902.

notice that this appears to be subject to a certain amount of variation according to age; the proportionate size (as I infer from the specimen now in the Society's Menagerie) being greater in young animals than in those of riper age. It is thus evident that for the purpose of defining local phases of the species, comparison should be restricted, so far as the matter of size is concerned, to subadult or adult animals.

The following are the actual specimens that have come under my notice:—1st, the young Abyssinian Elephant now living in the Society's Menagerie; 2nd, a mounted head from the Lake Rudolf district, in the British Museum; 3rd, an entire mounted specimen from Fort Manning, N.E. Rhodesia (South Nyasaland), in the British Museum; 4th and 5th, two mounted heads in the Imperial Institute, one from Mashonaland, and the other reported to be from Swaziland; 6th, the right ear of an Elephant shot in Congo Territory by Major Powell-Cotton, which forms the *fons et origo* of the present communication. Mr. F. C. Selous has lent me the ears of an Elephant shot by himself in Mashonaland, one of which is now exhibited; and I am also enabled to show, through the courtesy of the owner, the right ear of a huge Elephant killed by Mr. A. Haig on the Blue Nile. and the head of a male Somali Elephant belonging to S.A.R. le Duc d'Orléans. The head of an East African Elephant with very long tusks in Mr. Rothschild's museum at Tring came under my notice after the paper was read.

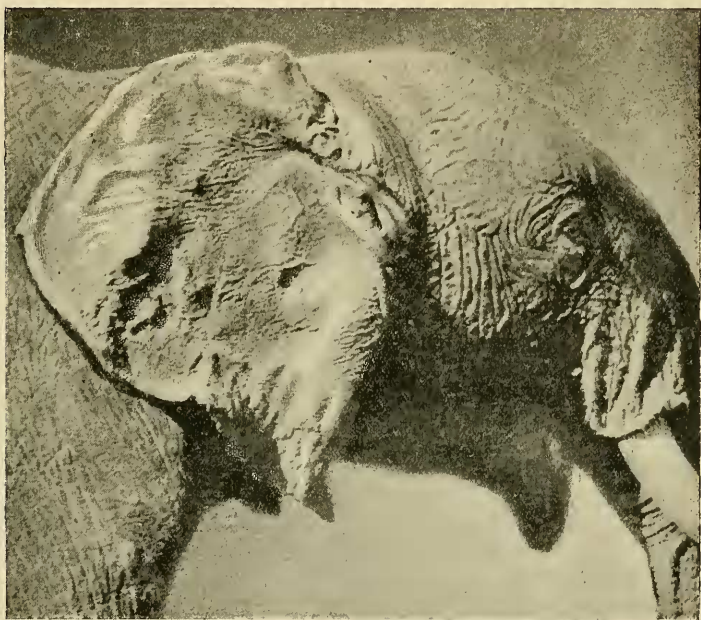
Of all these specimens, except the first and last, photographs are herewith exhibited, and I may take this opportunity of thanking the Director of the Imperial Institute for permission to photograph the two heads under his charge.

In addition to the above, I have been provided with the following photographs:—1st, a South Somali Elephant in the act of charging, photographed by Mr. R. McD. Hawker; 2nd, "Jumbo" and the "Queen's Elephant," both formerly living in the Society's Menagerie; 3rd, an Elephant from the Aberdare Mountains, in the private museum of Mr. C. V. A. Peel at Oxford; 4th, the photograph of the head of an Elephant from the Galla Country, belonging to Sir E. G. Loder; 5th, the head of an Elephant shot by the Duke of Westminster in North-west Rhodesia, now mounted at Eaton Hall; 6th, the head of an Elephant shot by H.R.H. the late Duke of Saxe-Coburg-Gotha in Cape Colony, now at White Lodge, Richmond; 7th, the head of a female South African Elephant in the Museum at Cape Town; 8th, the head of a female of the same race in the Museum at Saffron Walden; 9th, two Elephants from the Addo Bush, near Grahamstown. For No. 3 I am indebted to Mr. Peel, for No. 4 to the Duke of Westminster, for No. 5 to Rowland Ward Ltd., for No. 6 to the Director of the South African Museum, for No. 7 to the Curator of the Saffron Walden Museum, and for No. 8 to the Director of the Grahamstown Museum; and to all these donors my best thanks are due.

After reading the paper, I received from Mr. Frederick Gillett the photograph of an Elephant shot by himself in the Arusa Galla Country (Long. 41° E., Lat. $7^{\circ} 30'$ N.).

Before going further, it may be well to mention that some additional difficulty has been introduced into the work of comparison, owing to the ears of some of the specimens being in the "cocked" and others in the recumbent position, and likewise owing to certain differences in the orientation of the photographs. To these difficulties, which I have endeavoured so far as possible to discount, must be added any that may be due to vagaries on the part of the taxidermists who have set up the various specimens.

Text-fig. 105.



Head of the Addo Bush, or East Cape Elephant (*Elephas africanus capensis*), from an adult male specimen in the Grahamstown Museum.

With these preliminary remarks, attention may be directed to Dr. Matschie's description of the ears and other external characters of his four races. A free translation of the original paper enables these to be given as follows, viz. :—

I. In the Southern race (*Elephas africanus capensis*) the ears are enormous, somewhat square in shape, with rounded corners, and a small, distinct, sharply pointed angular lappet in front. The

forehead falls away towards the temples, so as to appear highly arched.

II. The Western race (*E. africanus cyclotis*), typically from South Cameruns, also has the ears very large, but of quite different shape, the contour being oval, and the lappet in the form of a half-ellipse. The skin has a mosaic-like appearance, and its colour is a paler grey than in the third race.

III. In the Sudan race (*E. africanus oxyotis*) the ears are considerably smaller and semicircular in shape, with the front lappet very sharply pointed and angular.

IV. The East African race (*E. africanus knochenhaueri*), typically from German East Africa, has still smaller ears, which are triangular in shape, with the front lappet angulated and pointed.

In addition to these, a dwarf race of Elephant from the Congo (*E. africanus pumilio*), which may not have exceeded 7 feet in height, has been named by Prof. T. Noack*; while the Albert Nyanza Elephant has been separated by myself† as a distinct race, under the name of *E. africanus albertensis*, characterised by certain peculiarities in the form of the skull, which is unusually short and broad.

Dr. Matschie, it should be added, was of opinion that the Congo and the Angola Elephant might also be racially distinct, while two or three other races might be represented in other parts of Africa.

Here a word of explanation may be given with regard to the element indicated by the word "lappet" in the foregoing definition of Dr. Matschie's races. This, I take it, refers to the antero-internal angle of the ear, which forms a more or less distinct lobe, and, as in text-fig. 106, may be inflected.

As Dr. Matschie commenced with the South African Elephant, the same course may be followed on the present occasion. Here, however, a difficulty at once presents itself, for there appear to be two distinct southern forms of the species, one from the eastern and the other from the western side of Cape Colony. It was to the Eastern form, as represented by an Elephant from the Upper Orange River district, that Cuvier gave the name of *Elephas capensis*; and since specimens from the same district afforded Dr. Matschie the materials for his definition of the race described under that name, we must apparently accept this determination of the race, which may, however, really be inseparable from Blumenbach's *E. africanus typicus*, based on teeth from a locality unknown.

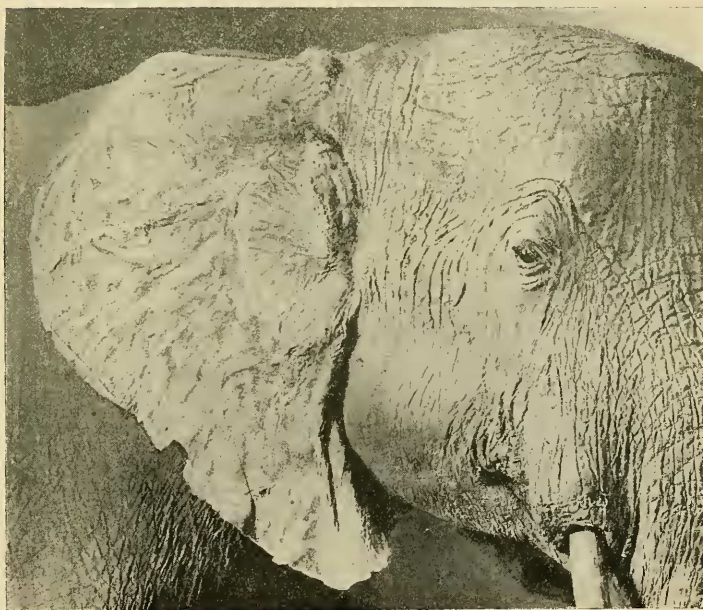
A male Elephant from the preserves in the Addo Bush near Port Elizabeth, mounted in the Grahamstown Museum, of which the right side of the head is shown in text-fig. 105, agrees in the squared form of the ear exactly with Dr. Matschie's definition of

* Zool. Anz. Leipzig, vol. xxix. 1906, pp. 631-636.

† 'The Field,' vol. cvii. 1906, p. 1089.

E. africanus capensis, and may accordingly be referred to that race. The inner front edge of the lappet is turned in towards the neck. The high arching of the profile of the forehead referred to by Dr. Matschie is strongly pronounced in the photograph, as it is in the photograph of a second and younger specimen in the Grahamstown Museum, which agrees precisely in the form of the ears with the first example. I may add that the Director of the Grahamstown Museum, to whom I am indebted for these photographs, has been long convinced of the racial distinctness of the Addo Bush Elephant, and has given me the following additional particulars of the animal. The ears, compared to those of the next race, are small, and the fore-legs proportionately low; while the ventral line of the body is almost horizontal. More important is the presence of a dense coat of hair on many parts of the body; this being very noticeable in the specimen of which the skeleton is now mounted in the Oxford Museum.

Text-fig. 106.

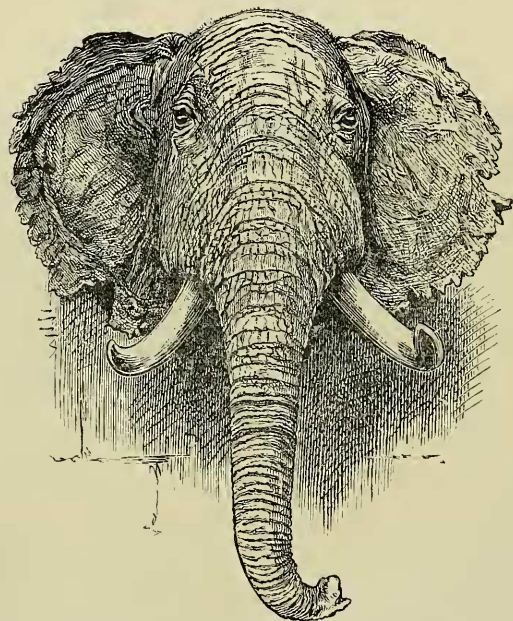


Head of Female West Cape Elephant (*Elephas africanus toxotis*), from a specimen in the South African Museum, Capetown.

If we call the preceding form the Addo Bush, or East Cape Elephant, the race to which attention is now directed may be termed the West Cape Elephant. That it is perfectly distinct

from *E. africanus capensis* is, I think, certain, the ears being relatively larger, and not having the slightest tendency to a squared form. This is well exemplified by the photograph of the head of an entire female specimen in the South African Museum at Cape-town (text-fig. 106), which may be taken as the type of this race. The ears are very long, somewhat in the form of a half-oval or perhaps of half a pear, with the lappet moderately large, not markedly pointed, but strongly inflected towards the neck. Apparently the ears do not quite meet, when in repose, in the middle line of the neck, and they are much larger in proportion to their width than in the Addo Bush Elephant, in which, as already mentioned, they approach a square. So far as I can learn, the skin is not hairy.

Text-fig. 107.



Head of Male West Cape Elephant (*Elephas africanus toxotis*), from a specimen shot by H.R.H. the late Duke of Saxe-Coburg-Gotha in South Africa, and now at White Lodge, Richmond.

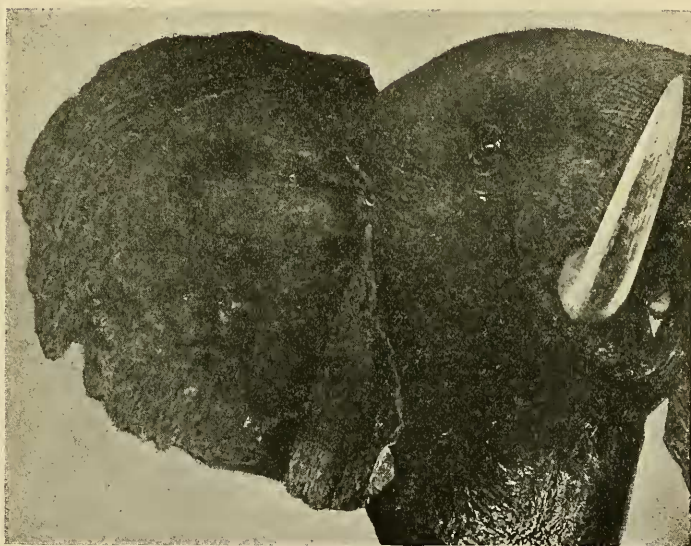
Unfortunately, I have not the dimensions of the ears of either the Cape Town or the Grahamstown specimen. Livingstone in his 'Missionary Travels' * has, however, recorded that in a female elephant standing 8 feet 8 inches in height, the ears measured 4 feet 5 inches in vertical depth by 4 feet in horizontal diameter.

* Small edition, page 370.

While indicating the large size of the ears characteristic of South African Elephants generally, these dimensions are suggestive of the Addo Bush type.

Reverting to text-fig. 106, it may be noticed that the arching of the forehead is less marked than in the Addo Bush Elephant. Nearly similar features are displayed in the photograph of the head of an immature South African Elephant in the Museum at Saffron Walden, Essex, which was acquired somewhere about the year 1850, but the ears, in correlation with its immaturity, are relatively larger. The front view of the head of a male elephant shot during (I believe) the sixties by H.R.H. the late Duke of Saxe-Coburg-Gotha in South Africa (text-fig. 107) seems undoubtedly to belong to the present type, the ears being of the same large semielliptical form, and not rising, when cocked, above the line of the middle of the head.

Text-fig. 108.



Head of Male Mashonaland Elephant (*Elephas africanus selousi*) in the Imperial Institute.

Assuming that I am justified in separating the West Cape Elephant, which survives only in a few protected localities such as Mossel Bay, from *E. africanus capensis* as typified by the Addo Bush Elephant, the former will require a new name (unless indeed it be *E. africanus typicus*). I accordingly suggest the

name *E. africanus toxotis*, taking the specimen shown in text-fig. 106 as the type.

I now pass to the head of a male Elephant in the Imperial Institute, shot by Mr. James Sligo Jameson. This Elephant (text-fig. 108), as I learn from a footnote on page 433 of Mr. Selous' 'A Hunter's Wanderings in South Africa,' was shot by Mr. Jameson in Matabililand (South Rhodesia).

Text-fig. 109.



Right Ear of Male Mashonaland Elephant (*Elephas africanus selousi*),
from a specimen belonging to Mr. Selous.

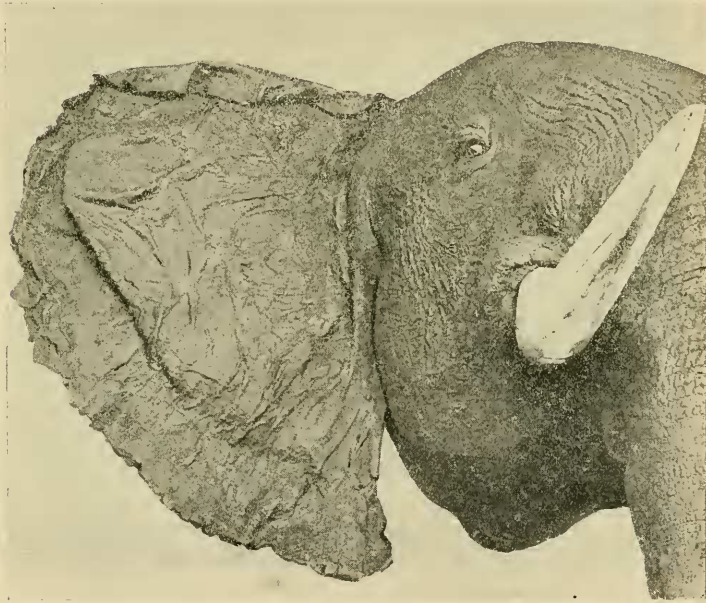
Mr. Selous has kindly lent me the right ear of another Elephant (text-fig. 109) shot in Mashonaland (Rhodesia), which apparently belonged to the same race as Mr. Jameson's Elephant. This ear has now a vertical diameter of 4 feet 8 inches, but when fresh it is stated to have measured 5 feet 6 inches. None of the upper margin is now reflected, but in life about four inches appears to have been turned back, as in *E. a. knochenhaueri*. The height of the elephant to which it belonged was about 10 feet. The ear is

much less elliptical than in *E. a. toxotis*, and approaches more to that of the undermentioned *E. a. cyclotis*, but agrees with the former in that the lappet underhangs part of the lower jaw and chin.

I think I am justified in regarding the Mashonaland Elephant as a distinct race, for which the name *E. africanus selousi* would be appropriate; the specimen in the Imperial Institute being regarded as the type.

This race will be characterised by the ears being of considerable size, with the margin rounded, and the inferior lappet large, pointed, and extending inwards to some extent beneath the lower jaw and throat. In this respect they are unlike those of other East African Elephants. Perhaps it may not be impertinent to suggest to the authorities of the Imperial Institute that this interesting specimen requires careful repairing at the hands of a skilled taxidermist.

Text-fig. 110.



Head of Male Elephant from Swaziland, in the Imperial Institute.

A second head in the Imperial Institute (text-fig. 110) is stated to have been obtained from Swaziland. The ears are in bad condition, and I am unable to come to any certain conclusion as to the race represented by this specimen, which appears, however, to approximate to the Mashonaland type.

The next specimen for consideration is the ear of the Congo Elephant killed by Major Powell-Cotton (text-fig. 111). The whole contour is regularly rounded, and the transverse diameter relatively large. That this type is quite different from the ear of *E. africanus toxotis*, as typified by the specimen represented in text-fig. 106, is perfectly evident. Exclusive of the lappet, this ear might well be described as oval; the lappet itself being broad, blunt, and short. It thus accords in general character with the

Text-fig. 111.



Right Ear of the Congo Elephant (*Elephas africanus cyclotis*?), from a male killed by Major Powell-Cotton.

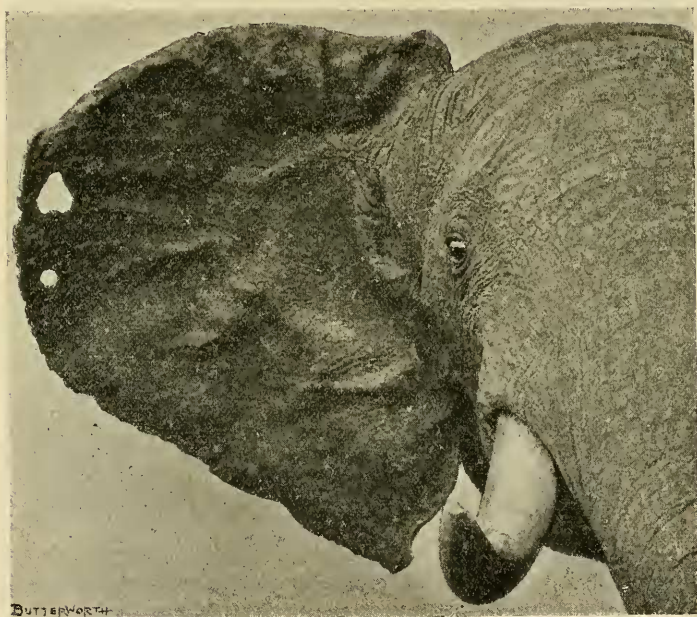
E. africanus cyclotis of Dr. Matschie, from the South Cameruns; but in the absence of a figure of the type of the latter it is impossible to say how close the resemblance really is. Under these circumstances, all that can be done is to refer Major Cotton's specimen provisionally to the Cameruns race, with the suggestion that if it prove distinct it should be named after the gallant explorer.

The Congo Elephant, it may be added, differs from both the

southern races in the large size of its tusks, which are, however, frequently of a somewhat slender type.

Attention may now be directed to several photographs (text-figs. 112-116) of Elephant-heads from various parts of the eastern side of Africa north of the Orange River; the ears of all of which are characterised by the tendency to the assumption of a more or less distinctly triangular form and by the pointed extremity of the lappet, which is not inflected, and stands out quite distinct from the side of the head. Dr. Matschie's *E. a. knochenhaueri* and *E. a. oxyotis* both pertain to this group; but whereas I have no difficulty in identifying the latter type, it is less easy to decide whether any one of my specimens should be identified with the former, which is typically from German East Africa.

Text-fig. 112.



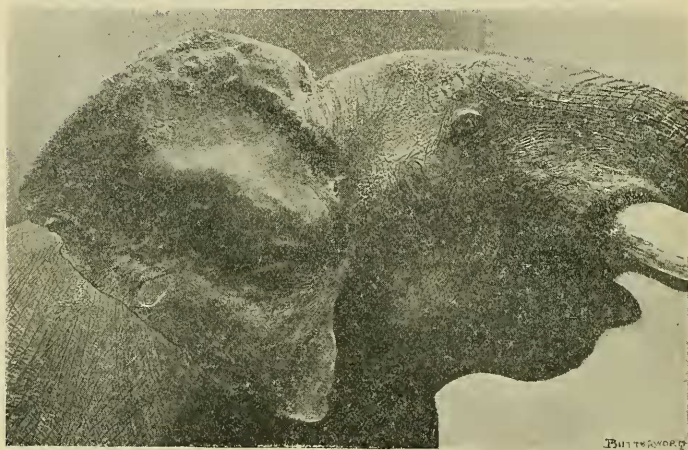
Head of a Male Elephant from North-west Rhodesia, in the possession of the Duke of Westminster.

I take first the head in the possession of the Duke of Westminster (text-fig. 112), which I am told was killed by his Grace in North-western Rhodesia. In this specimen the ears are of medium size, rising, when cocked, slightly above the vertex of the head, with the superior border nearly straight for some

distance, and the margin then forming a regular curve till the width begins to narrow, when it runs obliquely to the extremity of the small lappet which forms a symmetrical triangle. Although I have but little doubt that this specimen represents a distinct race, I do not intend to propose a name, on account of its not being in a well-known collection.

I now come to the male Elephant from Fort Manning, N.E. Rhodesia (Nyasaland), mounted in the British Museum (Natural History), of which the right side of the head is shown in text-fig. 113. The most striking features of the ear in this specimen are its relatively small size and distinctly triangular shape; the upper border, which rises considerably above the vertex of the skull and is reflected posteriorly to a depth of several inches, being

Text-fig 113.

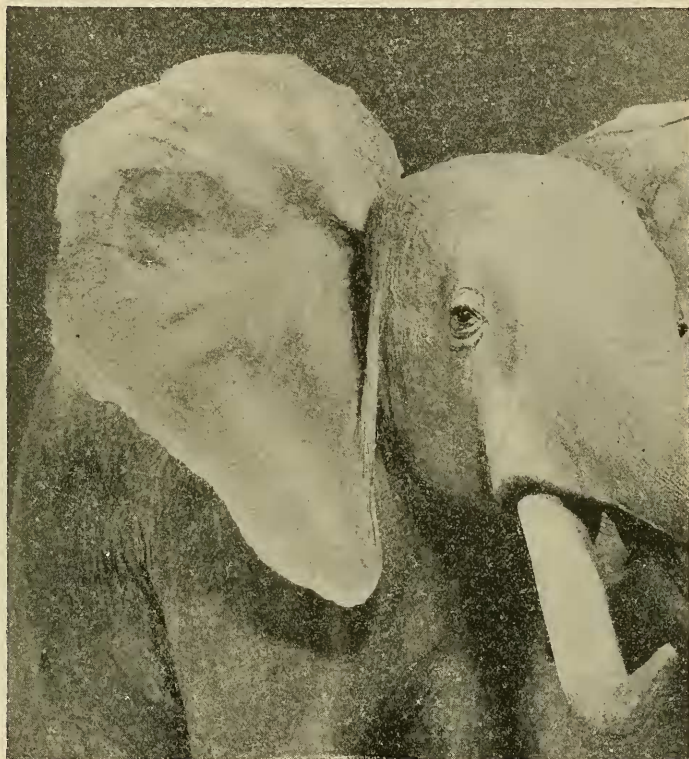


Head of Male Elephant from Fort Manning, N.E. Rhodesia (*Elephas africanus knochenhaneri*?), from the entire specimen in the British Museum.

strongly arched and terminating in a marked angle which forms the outermost point of the ear, while the lower and inner borders form nearly straight lines meeting in the angular apex of the lappet. The small relative size of the ear is indicated by the fact that whereas the height of the specimen is 11 feet 4 inches, the vertical diameter of the ear (inclusive of the reflection) is 4 feet $2\frac{1}{2}$ inches and the transverse diameter 3 feet 5 inches; the dimensions of the ear thus being considerably inferior to those in the Cape Elephant of 8 feet 8 inches in height recorded by Livingstone. In addition to its small and triangular ears, the North-east Rhodesian Elephant is also characterised by its relatively small head and tusks. Although the dimensions and a figure of

the ears of *E. africanus knochenhaueri* are not available, the Rhodesian animal clearly comes very close to that race (of which the type specimen came from German East Africa), and is accordingly, at any rate for the present, considered to be inseparable therefrom.

Text-fig. 114.

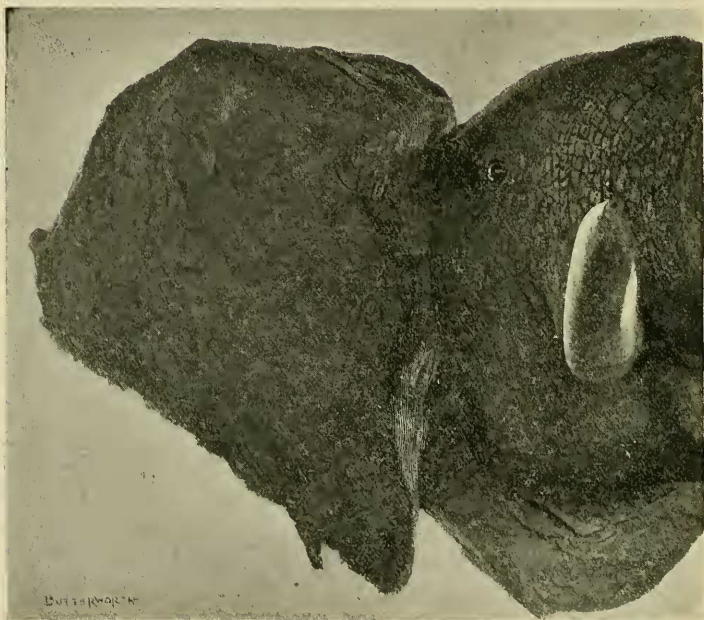


Head of Male Elephant from the Aberdare Mountains, British East Africa (*Elephas africanus peeli*), from a complete specimen in the collection of Mr. C. V. A. Peel at Oxford.

Next on the list comes an Elephant in the private collection of Mr. C. V. A. Peel, 12 Woodstock Road, Oxford, shot in the Aberdare Mountains, British East Africa, which are situated immediately east of the Victoria Nyanza, at no great distance from Mount Kenya. The ears of this specimen (text-fig. 114), which are mounted "cocked," are remarkable for their length and narrowness and somewhat pyriform shape; the vertical diameter being 4 feet $3\frac{1}{2}$ inches and the transverse 2 feet 5 inches.

The upper border is strongly arched, with the curvature continued along the outer margin, where there is no angulation, for a considerable distance, after which the ear rapidly narrows to the extremity of the long and pointed lappet. The tusks are large and of a relatively slender type. If I am right in identifying the North-east Rhodesian Elephant with *E. a. knochenhaueri*, it seems perfectly evident that Mr. Peel's animal must represent another race, which is equally distinct from the more northern *E. a. oxyotis*.

Text-fig. 115.



Head of Male Elephant from the Lake Rudolf District (*Elephas africanus carendishi*), shot by Mr. H. S. H. Cavendish, and now in the British Museum (Natural History).

Since the above was written Mr. Rothschild has sent me a photograph of the Elephant's head from South-east Africa in his museum, to which reference is made on page 282. It appears in all respects similar to the head of Mr. Peel's specimen, and may be referred to the same race, of which the long slender tusks form a feature. For this race I propose the name *E. africanus peeli*, making Mr. Rothschild's specimen a "co-type."

¶ (From the comparative nearness of the Lake Rudolf district to the Aberdare Mountains, it might be reasonable to suppose that the

same type of Elephant would be found in both areas. The head of an elephant from the former district, shot by Mr. H. S. H. Cavendish and now in the British Museum (text-fig. 115), appears, however, to be distinct from Mr. Peel's specimen, though the ears are of the same general type in the two. Owing to the different angles at which the photographs have been taken, it is difficult to determine whether or no the ears of the present specimen rise so high above the vertex as in Mr. Peel's elephant. They are, however, relatively broader (vertical diameter 2 feet 10 inches, transverse diameter 2 feet 11 inches), and show a decided, although not sharp, external angle, while the lappet is shorter and sharper. They are considerably reflected at the sides, but scarcely at all at the top. I think I may venture to make this specimen the type of a race, with the designation *Elephas africanus cavendishi*. It will be distinguished from *E. a. knochenhaueri* (as represented by the British Museum specimen) by the larger and less distinctly triangular ear, of which the upper border is more regularly convex, the outer angle less defined, and the lappet longer and narrower.

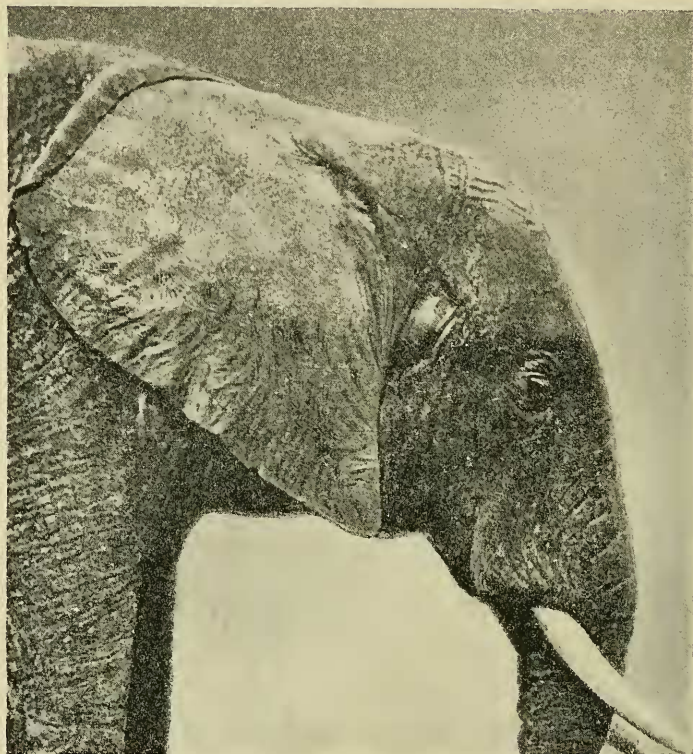
To *E. a. cavendishi* may be assigned the head of a bull Elephant shot in the Galla Country, on the south-west border of Somaliland, in the museum of Sir E. G. Loder, to whom I am indebted for the photograph of it. The Galla Country is no great distance from Lake Rudolf, and Sir E. G. Loder's specimen is so like the one given by Mr. Cavendish to the British Museum that the photograph of the former might almost be mistaken for that of the latter. I think Mr. Gillett's elephant also belongs to this race.

Here I may refer to a very interesting photograph of a male South Somali Elephant taken in the act of charging, with its ears cocked, by Mr. R. McD. Hawker in 1906, and presented by him to the British Museum. The small scale of the photograph does not admit of any definite statement with regard to this elephant, which seems to have proportionately smaller ears than the foregoing specimens.

Next on the list of races named on the evidence of the contour of the ear comes the Sudan, or Abyssinian Elephant (*Elephas africanus oxyotis*) of Dr. Matschie, typically from the Upper Atbara Valley, of which numerous examples have been recorded. Dr. Matschie describes the ears as semicircular, with a very long and sharp lappet. A very long and narrow triangle, of which the upper side is convex, terminating inferiorly in a long, sharp, forwardly-directed lappet, with the upper border reflected forwards and the two ears overlapping in the middle line when in repose, seems a better definition. It must, however, be admitted that precise definition of the ear-characters of the various races is almost an impossibility, and that reference to figures or specimens is essential. With regard to the value to be attached to the forward bending of the upper rim of the ear, I am uncertain. In many mounted specimens this rim is backwardly reflexed; but

whether this is correct, or whether the condition alters according as to whether the ears are in repose or cocked, I am unable to state.

Text-fig. 116.



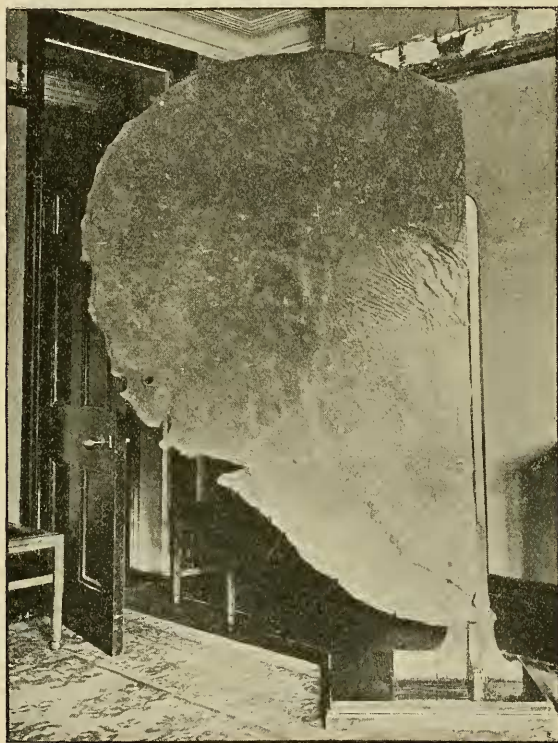
Head of the "Queen's Elephant," an immature Male Sudan Elephant (*Elephas africanus oxyotis*), formerly owned by the Society.

I take as a typical example of this race the head of the well-known "Queen's Elephant" formerly in the Society's collection (text-fig. 116). This animal came from Abyssinia. A second example of the same race is the young Abyssinian Elephant now living in the menagerie in the Regent's Park, whose ears accord very closely in shape with those in the photograph of the "Queen's Elephant."

The largest ears I have seen are those of an Elephant killed by Mr. A. Haig on the Blue Nile, one of which is shown in text-fig. 117. This specimen, as mounted (possibly with some stretching), has a maximum vertical diameter of no less than

6 feet $5\frac{1}{2}$ inches, and a transverse diameter of 4 feet $1\frac{1}{2}$ inches. The height of the animal to which it belonged is estimated by the owner (from the circumference of the fore-foot) to have been over 13 feet. Mr. Haig also possesses the ears of another Elephant from the same district, which are rather smaller. As mounted, neither of these ears shows any fold at the top; although, as already mentioned, in the "Queen's Elephant," as well as in

Text-fig. 117.



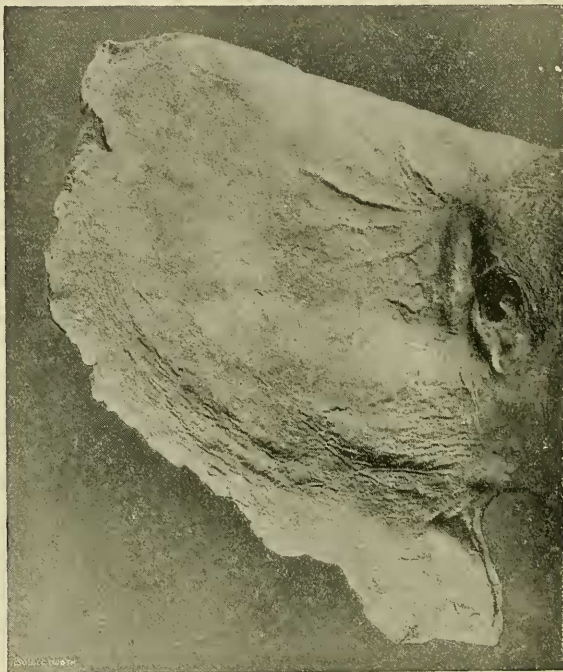
Right Ear of a Male Sudan Elephant (*Elephas africanus oxyotis*), from the Blue Nile, in the possession of Mr. A. Haig.

the young Abyssinian Elephant now living in the Society's Gardens, there is a small forward fold. The enormous length of the ears of this race is indicated in the photograph of a herd at the Giza Zoological Gardens sent me by Captain S. S. Flower, where this feature is well displayed in one full-grown animal. Despite the gigantic stature attained by *E. a. oxyotis*, the tusks

in this race seem to be small and sharply curved; those of Mr. Haig's larger specimen weighing less than 60 lbs. each.

While the Elephant of the Blue Nile appears inseparable from the Abyssinian form, i. e. *E. a. oxyotis*, I am informed by Mr. Haig that the Elephants of the White Nile are quite distinct, having relatively small ears.

Text-fig. 118.

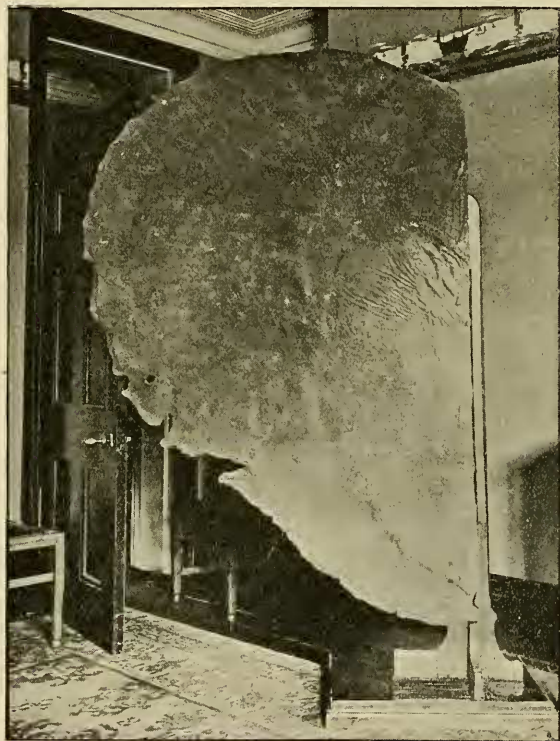


Right Ear of the North Somali Elephant (*Elephas africanus orleansi*), from the type specimen in the collection of S.A.R. le Duc d'Orléans.

Whether the White Nile Elephant is or is not identical with the one inhabiting Somaliland, I am unable to say; but the head from the latter district belonging to the Duc d'Orléans (cf. text-fig. 118) clearly indicates a race markedly distinct. This race, which I propose to call *E. africanus orleansi* (with the type specimen in the collection of the Duc d'Orléans at Wood Norton), is characterised by the very small size of the ears, which do not reach within a considerable distance of the lower jaw and throat, and are proportionately not much larger than those of *E. a. knochenhaueri*, although of quite different shape. In the

6 feet $5\frac{1}{2}$ inches, and a transverse diameter of 4 feet $1\frac{1}{2}$ inches. The height of the animal to which it belonged is estimated by the owner (from the circumference of the fore-foot) to have been over 13 feet. Mr. Haig also possesses the ears of another Elephant from the same district, which are rather smaller. As mounted, neither of these ears shows any fold at the top; although, as already mentioned, in the "Queen's Elephant," as well as in

Text-fig. 117.



Right Ear of a Male Sudan Elephant (*Elephas africanus oxyotis*), from the Blue Nile, in the possession of Mr. A. Haig.

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specimen figured, which indicates a small, although apparently adult elephant, the maximum vertical diameter of the ear is only 2 feet 11 inches, and the transverse diameter 2 feet. The ears, which (as mounted) show no folding, are remarkable for the circumstance that their upper margin is almost continuous with that of the head itself; the distinct notch occurring at the junction of the ear with the head in all other Elephants that I have seen, being absent. The upper margin of the ear forms a nearly straight line inclining upwards to the outer upper angle; from the latter point the outer margin runs nearly vertically downwards for a considerable distance, and is then continued for a much longer distance in a downward and inward direction to terminate in the point of the inferior lappet. The lappet itself is small, triangular, sharply pointed inferiorly, and separated by a wide notch from the side of the lower jaw and throat. It seems, indeed, to form a semi-distinct appendage of the ear, and is thus quite unlike the corresponding element in any other head that has come under my notice. The distinctness of the North Somali Elephant, as it should be called, is thus perfectly apparent.

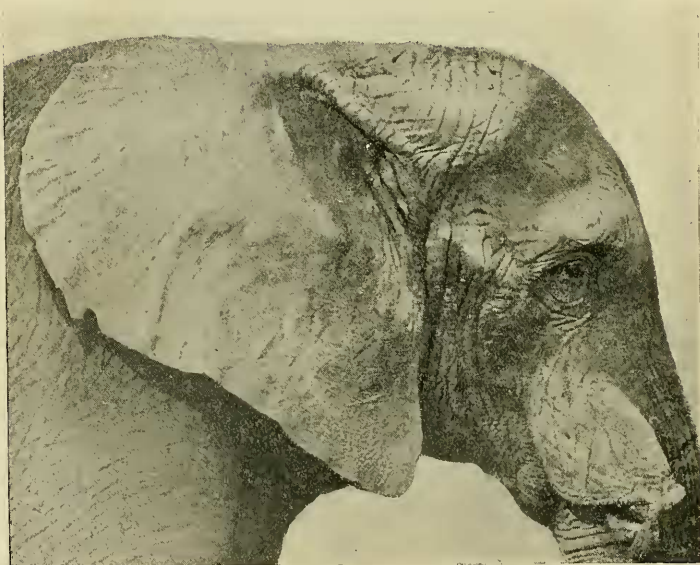
The next race for consideration is the one from the French Sudan, typified by "Jumbo," the Society's well-known African Elephant. "Jumbo," together with "Sahib," who died last year after a sojourn of about thirty years at Paris, was brought to France from some part of the French Sudan*, probably to the southward of Lake Chad, and afterwards sold to our Society. At the time he left England for America he was believed to be about 11 feet in height; and both he and "Sahib" indicate an unusually large race of the species. As regards the characters of the ear, the West Sudan race appears to connect the East African races with *E. a. cyclotis*. Compared with that of *E. a. oxyotis* (text-fig. 117) the ear of "Jumbo" (text-fig. 119) is relatively smaller, and has a strongly emarginate, in place of a nearly straight postero-inferior border. The emargination of this border causes the lappet to be much more distinct from the rest of the ear than is the case in *E. a. oxyotis*; and if this semidistinct lappet were altogether removed, we should have an ear not very unlike that of *E. a. cyclotis*. Jumbo's ears, when in repose, nearly meet in the middle line of the back, and show no flexure of the margin, whereas the upper border of those of *E. a. oxyotis* is bent over the front surface. A marked peculiarity in the case of "Jumbo" is the deep channel running upwards and backwards from the meatus. The subpyriform shape of the ear, with the above-mentioned groove, and the absence of any flexure of the margin, appear to be the most easily recognised features of the large West Sudan race, which I propose to call *E. a. rothschildi*, taking the statuette of "Jumbo" in the British Museum (Natural History) as the type.

Thus ends this long review of the various forms of ear

* This information was given me by Mr. Rothschild after the paper was read.

presented by the Elephants that have come under my notice. Possibly it may be pronounced an unsatisfactory one; and it is confessedly but a preliminary recognisance, written in the hope that it may lead to more definite results. Before such results can be attained it is of prime importance that the British Museum should obtain mounted heads of a number of Elephants from different parts of Africa; and the assistance of sportsmen towards this object is earnestly invoked, as if the work is to be done at all, it is all important that it should not be delayed. I may also express the hope that Dr. Matschie will speedily see his way to publish photographs of the ears of the type specimens of the four races recognised by himself.

Text-fig. 119.



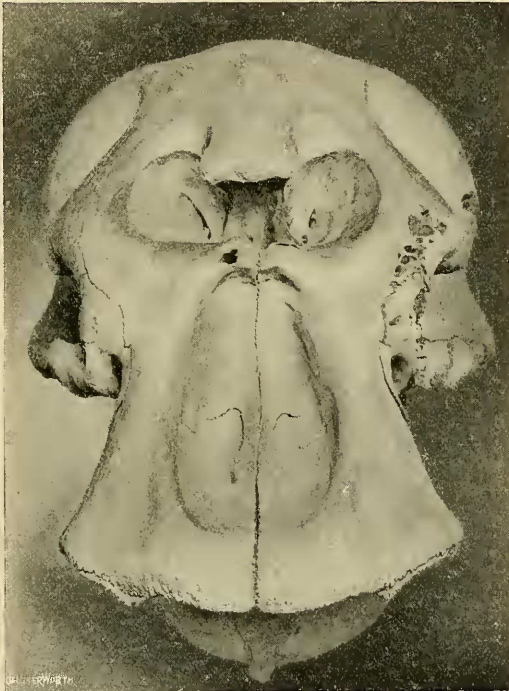
Head of "Jumbo," the male West Sudan Elephant formerly belonging to the Society.

In regard to the dwarf Congo Elephant (*Elephas africanus pumilio*) of Prof. Noack, this appears to be characterised, according to our present information, primarily by its small stature, which is estimated to be about 7 feet. There is, however, no definite information even on this point, as the living specimen, now in America, upon which the description was based is immature. According to a note kindly communicated to me by Dr. Chalmers Mitchell, this Elephant differs from the other races of the species by the unusual shortness of the "finger" on the

lower border of the tip of the trunk and unusual length of the upper "finger." It also appears to have a darker skin than in *E. a. cyclotis*. (See *infra*, p. 447.)

In conclusion, reference may be made to my account in the 'Field' newspaper for 1906* of the skull of an Elephant killed by Mr. Stanley C. Tomkins at the south end of the Albert Nyanza. Mr. Tomkins, who presented the skull to the British Museum,

Text-fig. 120.



Front view of the Skull of the Sudan Elephant (*Elephas africanus oxyotis*).

also forwarded a photograph of the dead elephant as it lay on its side in scrub-jungle. Unfortunately the photograph does not show the complete contour of the ear; but the portion visible, although apparently of the triangular type, does not seem to agree with the ear of any of the specimens referred to above. According to information supplied by Mr. Tomkins, both the natives of the Albert Nyanza and sportsmen who have visited

* Vol. cvii. p. 1089 (1906).